

DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION

1A19
Revision 6
Bombardier
(Caribou) DHC-4
(Caribou) DHC-4A
January 31, 2006

TYPE CERTIFICATE DATA SHEET NO. 1A19

This data sheet which is a part of type certificate No. 1A19 prescribes conditions and limitations under which the product for which the type certificate was issued meets the requirements of the Civil Air Regulations.

Type Certificate Holder	Viking Air Limited 9574 Hampden Road Sidney, British Columbia Canada V8L 8V5
Type Certificate Holder Record	Bombardier, Inc. Regional Aircraft 123 Garratt Boulevard Downsview, Ontario, Canada M3K 1Y5

I - Model DHC-4 (Transport Category), FAA Approved December 23, 1961; Canadian approval July 24, 1959
Model DHC-4A, FAA Approved July 11, 1961; Canadian approval May 19, 1961
DHC-4A same as DHC-4 except for gross weight modifications, see NOTE 4.

Engines 2 P&W R-2000-7M2 or D-5
Propeller reduction gearing 2:1

Fuel 100/130 minimum grade aviation gasoline

Engine limits

	<u>HP</u>	<u>RPM</u>	<u>MP</u> <u>IN HG</u>	<u>ALT</u>
Low impeller gear ratio 7.15:1				
Takeoff (5 minutes)	1450	2700	50.0	S.L.
	1450	2700	49.5	3500'
Maximum continuous	1200	2550	42.5	S.L.
	1200	2550	41.4	7000'

(Straight-line manifold-pressure variation with altitudes shown).

Propellers and
propeller limits 2 Ham. Standard, hubs 43D50, blades 7107A-0 standard or 7107B-0 deiced.
Diameter: Max. 13' 7/8", min. allowable for repairs 12' 9-3/4".
Pitch settings at 42 in. sta.:
Low pitch 21°, feathered 88°

Airspeed Limits (CAS)

	<u>Altitude (ft.)</u>	<u>DHC-4</u> <u>MPH</u>	<u>Knots</u>	<u>DHC-4A</u> <u>MPH</u>	<u>Knots</u>
Vne (never exceed)	S.L. to 10,000	248	215	243	211
	Above 10,000 ft. speed is reduced 1 mph (1 knot) per 1000 ft.				
Vno (normal operating)	S.L. to 10,000	199	173	193	168
	Above 10,000 ft. speed is reduced 3 mph (3 knots) per 1000 ft.				
Va (maneuvering)		140	122	139	121

Page No.	1	2	3	4	5
Rev. No.	6	-	3	5	3

Vfe (flaps extended)				
0° to 15° (all engine powers)	122	107	122	107
15° to 20° (all engine powers)	112	97	112	97
20° to 30° (all engine powers)	100	85	100	85
30° to 40° (all engine powers)	90	80	90	80
Vlo (Landing gear operation)	140	122	140	122
Vle (Landing gear extended)	140	122	140	122
Vmc (Single engine min. control)	76	66	80	69

C.G. range	<u>Weight (lb.)</u>	<u>Fwd. Limits</u>	<u>Aft Limits</u>
DHC-4	26000*	(347.4)	(357.2)
	21000* or less	(341.4)	(357.2)
DHC-4A	28500*	(347.4)	(357.2)
	21000* or less	(341.4)	(357.2)

*Straight-line variation between these values

NOTE: The above C.G. limits are for the landing-gear-extended condition.
Loadings based on this condition which fall within these limits
will be satisfactory with the landing gear retracted.

Datum 193.0 inches forward of jig point which is marked by a plate attached to the underside of the fuselage at the centerline. Values in parentheses () are inches aft of datum.

M.A.C. 120.8 inches (L.E. of M.A.C. +310.00)

Leveling means Plumb-bob suspension and target brackets are located on the port side of doorway in cabin forward bulkhead.

Maximum weight	DHC-4	Takeoff	26,000 lb.
		Landing	26,000 lb.
		Zero fuel and oil	26,000 lb.
	DHC-4A	Takeoff	28,500 lb.
		Landing	28,500 lb.
		Zero fuel and oil	27,000 lb.

Minimum crew 2 (Pilot and copilot)

Maximum passengers 30 - See Approved Weight and Balance Handbook, DHC Report Aeroc 4.3.G.2 for actual numbers and location

Maximum baggage	Main Cabin <u>Section Location</u>	<u>Centroid</u>	Max. Floor (lb./sq.ft.)	Capacity (lb./in.run)	Total (lb.)
	C-1 (193.0) to (233.0)	(213.0)	200	100	4000
	C-2 (233.0) to (273.0)	(253.0)	200	100	4000
	C-3 (273.0) to (313.0)	(293.0)	200	100	4000
	C-4 (313.0) to (353.0)	(333.0)	200	100	4000
	C-5 (353.0) to (393.0)	(373.0)	200	100	4000
	C-6 (393.0) to (433.0)	(413.0)	200	100	4000
	C-7 (433.0) to (473.0)	(453.0)	200	100	4000
	C-8 (473.0) to (513.0)	(493.0)	200	100	4000
	C-9 (513.0) to (538.0)	(525.5)	200	100	2500

Fuel capacity See NOTE 1(b) regarding "Unusable fuel and system oil."

	<u>Usable Fuel</u>	
	<u>Imp. gal.</u>	<u>lb.</u>
Port wing tank	345	2484
Starboard wing tank	<u>345</u>	<u>2484</u>
Totals	690	4968

(Imperial gallon equals 1.201 U.S. gal.)

Oil capacity See NOTE 1(b) regarding "Unusable fuel and system oil."

	<u>Usable Fuel</u>	
	<u>Imp. gal.</u>	<u>lb.</u>
Port tank	14.1	127
Starboard tank	<u>14.1</u>	<u>127</u>
Totals	28.2	254

Maximum operating altitude 25,000 ft. (When suitable supplemental breathing equipment is provided for passengers and crew.)

Other operating limitations Aircraft shall be operated in compliance with the operating limitations specified in the approved Airplane Flight Manual.

Control surface movements	Rudder	Left	$20^{\circ} \pm 1^{\circ}$	Right	$20^{\circ} \pm 1^{\circ}$
	Rudder spring tab	Left	$24^{\circ} \pm 1^{\circ}$	Right	$24^{\circ} \pm 1^{\circ}$
	Rudder trim tab	Left	$15^{\circ} + 2^{\circ}$ $- 1^{\circ}$	Right	$15^{\circ} + 2^{\circ}$ $- 1^{\circ}$
	Stabilizer - Flaps Up	Up	$1^{\circ} \pm 10'$		
	Flaps Down	Up	$5^{\circ} \pm 15'$		
	Elevators	Up	$21^{\circ} \pm 1^{\circ}$	Down	$10^{\circ} \pm 1^{\circ}$
	Elevator trim tab	Up	$10^{\circ} \pm 1^{\circ}$	Down	$20^{\circ} \pm 1^{\circ}$
	Elevator spring tab	Up	$29^{\circ} \pm 1^{\circ}$	Down	$20^{\circ} \pm 1^{\circ}$
	Ailerons (Flaps Fully Down)				
	Mid Aileron	Up	$20^{\circ} \pm 1^{\circ}$	Down	$14 \frac{1}{2}^{\circ} \pm 1^{\circ}$
	Outboard Aileron	Up	$22 \frac{1}{2}^{\circ} \pm 1^{\circ}$	Down	$22 \frac{1}{2}^{\circ} \pm 1^{\circ}$
	Ailerons (Flaps Fully Up)				
	Mid Aileron	Up	$9 \frac{1}{2}^{\circ} \pm 1^{\circ}$	Down	$5^{\circ} \pm 1^{\circ}$
	Outboard Aileron	Up	$21^{\circ} \pm 1^{\circ}$	Down	$16 \frac{1}{2}^{\circ} \pm 1^{\circ}$
	Aileron trim tab	Up	$15^{\circ} \pm 1^{\circ}$	Down	$15^{\circ} \pm 1^{\circ}$
	Aileron rubber - interconnect tab (Flaps up, aileron neutral, no rudder spring tab wind up)	Up	$13^{\circ} \pm 1^{\circ}$	Down	$13^{\circ} \pm 1^{\circ}$
	Aileron geared tabs (Flaps up)				
	Aileron up	Up	$3^{\circ} \pm 1^{\circ}$		
	Aileron Down	Up	$24^{\circ} \pm 1^{\circ}$		
	Wing Flaps (Maximum)				
	Root & Inboard fore flap	Down	$40^{\circ} \pm 1^{\circ}$		
	Root & Inboard trailing flap	Down	fore flap angle plus $22^{\circ} \pm 1^{\circ}$		
	Mid fore flap	Down	$31^{\circ} \pm 1^{\circ}$		
	Outboard fore flap	Down	$31^{\circ} \pm 1^{\circ}$		
	Mid trailing flap	Down	fore flap angle plus $2 \frac{1}{2}^{\circ} \pm 1^{\circ}$		
	(Mid aileron)				
	Outboard trailing flap	Down	fore flap angle $\pm 1^{\circ}$		
	(Outboard aileron)				

Serial Nos. eligible 2 and 13 and subsequent. The Canadian Department of Transport Certificate of Airworthiness for export endorsed as noted under "Import Requirement" must be submitted for each individual aircraft for which application for certification is made. See NOTE 4 regarding Model DHC-4A.

Import requirements	<p>A U.S. Airworthiness Certificate may be issued on the basis of Canada Department of Transport "Certificate of Airworthiness for Export" signed by the Controller of Civil Aviation. A "D.O.T. Canada Conformity Certificate - Military Aircraft" form, signed by the Regional Airworthiness Inspector, Department of Transport, may be used in lieu of the "Certificate of Airworthiness for Export" if the deviations listed in the "Conformity Certificate - Military Aircraft" have been modified to conform to the Type Design of the DHC-4. These forms must contain the following statement: "This certifies that the aircraft described below has been manufactured in conformity with data forming the basis for D.O.T. Type Approval No. 49 (FAA Type Certificate No. 1A19)." This certification equivalent to CAR Part 4b dated December 31, 1953 and Amendments 4b-1, 4b-2, 4b-3 and 4b-5 thereto.)</p>
Certification basis	<p>CAR 10. Type Certificate No. 1A19 issued December 23, 1960.</p> <p>Date of Application for Type Certificate January 16, 1957.</p> <p>In addition to the above, it shall be ascertained that the following Bombardier documents have been complied with on all affected DHC-4 Series aircraft, as indicated below, prior to the issuance of a U.S. Airworthiness Certificate:</p> <ol style="list-style-type: none"> 1. Engineering Bulletin No. 11, dated May 31, 1961 (Applies to DHC-4 Series aircraft Serial Nos. 2 through 17). 2. Engineering Bulletin No. 12, dated December 28, 1961 (Applies to DHC-4 Series aircraft Serial Nos. 2 through 32). 3. Modification Bulletin No. 4/1099, Issue "3", dated February 23, 1962 (Applies to DHC-4 Series aircraft Serial Nos. 1 through 43, 45, 46, 47, 49, 50, 51, 53, 54, 55, 57, 58 and 59). 4. Modification Bulletin No. 4/1101, Issue "4", dated January 18, 1962 (Applies to DHC-4 Series aircraft Serial Nos. 2 through 22, 24, and 25). 5. Modification Bulletin No. 4/1143, Issue "2", dated January 11, 1962 (Applies to DHC-4 Series aircraft Serial Nos. 2 through 54, except Serial No. 23). 6. Modification Bulletin No. 4/1150, Issue "3", dated July 18, 1962 (Applies to DHC-4 Series aircraft Serial Nos. 1 through 43, 45, 46, 47, 49, 50, 51, 53, 54, 55, 57, 58, and 59). 7. Modification Bulletin No. 4/1182, Issue "2", dated July 17, 1962 (Applies to DHC-4 Series aircraft Serial Nos. 2 through 38, except Serial Nos. 23 and 34). 8. Modification Bulletin No. 4/1203, Issue "3", dated November 8, 1962 (Applies to DHC-4 Series aircraft Serial Nos. 4 through 74, except Serial Nos. 40, 56, and 73). <p>All procedures in these documents, or an FAA-approved equivalent, shall be considered mandatory.</p>
Equipment	<p><u>Propeller and Propeller Accessories:</u></p> <p>2 Hamilton Standards, Hubs 43D50-651 Blade 7107D-0 De-iced Diameter 13 ft. 7/8 in. (minimum allowable for repairs 12 ft. 9 3/4 in.) Pitch settings at 42 in. Station Reverse -8° Min. Low 21° Feathered 88°</p> <p>Approved equipment is shown in the Equipment List, DHC Report Aeroc 4.1.G.5. The basic required equipment as prescribed in the applicable airworthiness regulations (see Certification Basis) must be installed in the aircraft for certification. In addition, the following items of equipment are required:</p> <ol style="list-style-type: none"> (a) Stall warning system to Modification No. 4/1069 (b) Approved Airplane Flight Manual dated January 20, 1961, reissued April 28, 1961.

- NOTE 1. (a) A current Weight and Balance Handbook, DHC Report Aeroc 4.3.G.2, shall be carried in the aircraft at all times.
- (b) Unusable fuel and system oil and all hydraulic fluid must be included in the empty weight.

Unusable fuel is that quantity of fuel in the system and in the tanks which is unavailable to the engines under critical flight conditions as defined in CAR 4b.416. The total amount of fuel is as follows:

<u>Usable fuel</u>	<u>Unusable fuel</u>
(lb. at 7.2 lb./Imp.gal.)	46 lb.
690 Imp. gal. (4968 lb.)	

System oil is that amount of oil required to fill the oil system and tanks to the tank outlets to the engines. The total amount of oil is as follows:

<u>Usable Oil</u>	<u>System Oil</u>
(lb. at 9.0 lb./Imp.gal.)	166 lb.
28.2 Imp. gal. (254 lb.)	

- NOTE 2. "All placards required in the approved airplane flight manual must be installed in the appropriate locations."
- NOTE 3. Reference-Department of Transportation Approved Tables AIII-1 and AIII-2 contained in Appendix III Part 7 of the DHC-4 Maintenance Manual for retirement times of various aircraft components.
- NOTE 4. Model DHC-4 is converted to Model DHC-4A by the embodiment of modifications 4/1015, 4/1016 and 4/1017. Modifications incorporated at time of production in serial No. 23 and subsequent; the equivalent retrofit action is listed in Engineering Bulletin Series DHC-4 No. 10.

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